Claims

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- 1. A composition comprising:
- (a) from 0.1% to 20% of at least one bicyclic thioamide of formula I:

$$R^4$$
 R^5
 R^2
 R^1
 R^1
 R^1
 R^1
 R^2
 R^3
 R^2
 R^3

wherein X is O, S, NR⁶ or CR⁷R⁸; R¹, R², R⁴, R⁵, R⁷ and R⁸ independently are hydrogen, alkyl, alkenyl, aryl or aralkyl; R³ and R⁶ independently are hydrogen, alkyl, alkenyl, aryl, aralkyl, alkanoyl or aroyl; and bond "a" is a single or double bond; and

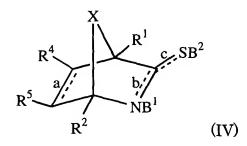
- (b) a lubricating oil.
- 2. The composition of claim 1 in which at least one of R¹, R², R³, R⁴, R⁵, R⁶, R⁷ and R⁸ is aryl, aralkyl, C₄-C₂₂ alkyl or C₄-C₂₂ alkenyl.
 - 3. The composition of claim 2 in which bond "a" is a double bond.
- 4. The composition of claim 3 in which R^3 is C_6 - C_{22} alkyl, C_6 - C_{22} 20 alkenyl, aryl or aralkyl.
 - 5. The composition of claim 4 in which X is NR⁶.
 - 6. The composition of claim 2 in which bond "a" is a single bond.
 - 7. The composition of claim 6 in which X is NR⁶.
 - 8. A composition comprising:

(a) a reaction product of a compound of formula (I) with an imine; an unsaturated carboxylic acid or ester; an isocyanate or isothiocyanate; or an alkyl, alkenyl or aralkyl group bearing a leaving group; and

(b) a lubricating oil.

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9. A compound of formula (IV)



wherein X is O, S, NR⁶ or CR⁷R⁸; R¹, R², R⁴, R⁵, R⁷ and R⁸ independently are hydrogen, alkyl, alkenyl, aryl or aralkyl; R⁶ is B³, hydrogen, alkyl, alkenyl, aryl, aralkyl, alkanoyl or aroyl; bond "a" is a single or a double bond; bonds "b" and "c" are single or double bonds, provided that one of b and c is a single bond and the other is a double bond;

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 B^1 , B^2 and B^3 independently are ${}^{\cdot}CR^{12}H^{\cdot}CR^{13}H^{\cdot}COOR^{14}$, ${}^{\cdot}CR^{10}R^{11}NHR^9$, ${}^{\cdot}C(O)NHR^{15}$, ${}^{\cdot}C(S)NHR^{15}$ or R^{16} ; provided that at least one of B^1 , B^2 and B^3 is ${}^{\cdot}CR^{12}H^{\cdot}CR^{13}H^{\cdot}COOR^{14}$, ${}^{\cdot}CR^{10}R^{11}NHR^9$, ${}^{\cdot}C(O)NHR^{15}$, ${}^{\cdot}C(S)NHR^{15}$ or R^{16} ; and provided that when one of B^1 and B^2 is ${}^{\cdot}CR^{12}H^{\cdot}CR^{13}H^{\cdot}COOR^{14}$,

-CR¹⁰R¹¹NHR⁹, -C(O)NHR¹⁵, -C(S)NHR¹⁵ or R¹⁶, then the other of B¹ and B² is absent;

R¹⁰, R¹¹ and R¹⁴ independently are hydrogen, alkyl, alkenyl, aryl or aralkyl; R¹⁶ is alkyl, alkenyl or aralkyl; R¹² and R¹³ independently are hydrogen or C₁-C₄ alkyl; R⁹ and R¹⁵ independently are alkyl, alkenyl, aryl or aralkyl.

10. The compound of claim 9 in which at least one of B1, B2 and B3 is

 $-CR^{12}H-CR^{13}H-COOR^{14},\ -CR^{10}R^{11}NHR^9,\ -C(O)NHR^{15}\ or\ -C(S)NHR^{15}.$